



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

### Concerns over catching covid-19 in hospital The coronavirus may become a potential hazard of going to hospital unless we introduce new measures to stop the spread, says **Clare Wilson**

DOCTORS are becoming increasingly concerned about the rising rate of covid-19 infections acquired in hospitals. They fear that the coronavirus is becoming a potential hazard of hospital stays for older or vulnerable people, in a similar way to “superbugs” such as methicillin-resistant *Staphylococcus aureus* (MRSA).

People who go to hospital for non-covid-19 treatment are at higher risk from the virus compared with the general public, says Tom Lawton, an intensive care doctor in Bradford, UK, as covid-19 can be more severe if you have other medical conditions, physical injuries or need surgery.

Hospital-acquired covid-19 has been happening since the start of the pandemic, but the problem is likely to be worsened by the higher infectiousness of the omicron variants that have been predominating since the start of the year, says Michael Klompas at Harvard Medical School.

The proportion of people in hospital in England infected with covid-19 who caught it while in hospital has now reached its highest recorded level, at 24 per cent as of 10 July, according to figures calculated by Lawton using data from NHS England. NHS England didn't respond to a request for comment before publication.

While comparable figures aren't made available in other countries, including the other UK nations, some UK doctors suspect rates of hospital-acquired covid-19 are particularly high because most UK hospitals have large wards with many beds. By contrast, in the US, for instance, most hospital patients stay in single or double rooms and hospitals have higher ventilation standards.

Regularly testing hospital patients for covid-19 can also



HANNAH MCKAY/BLOOMBERG VIA GETTY IMAGES

**Staff wearing masks at the Royal Blackburn Teaching Hospital, UK**

be a way of reducing spread, as people found to be positive can be isolated. But in Sweden, for instance, hospitals now rarely test asymptomatic people.

Healthcare workers in Sweden tend to be less concerned about preventing the spread of covid-19, perhaps stemming from the country's more hands-off attitude to covid-19 restrictions, says Katrin Rabie, who was formerly a doctor at NU Hospital Group in Sweden. “It is really lax,” she says. “The norm is no covid precautions.”

Most countries don't take hospital-acquired covid-19 cases as seriously as they do the spread of other hospital-based superbugs, like MRSA – but they should, says Matt Butler at Cambridge University Hospitals. “What we don't do is say, ‘Where did they get it from?’ For MRSA, *Clostridium difficile*, norovirus, we sit round a table and we do the genomics to find out where it came from.”

“We spend a lot of money on shampoos and creams to treat skin colonisation with MRSA, but we do nothing to stop hospital-

acquired covid,” says Butler. “But covid is much worse than skin colonisation with MRSA.”

Several studies have found that people who have other illnesses or need surgery are more likely to die if they also have covid-19. For instance, in people needing surgery to repair a broken hip, 30 per cent died within one month of surgery if they had covid-19 within either a week before the operation or a month afterwards, a large international study found. Although this study didn't directly compare people who had covid-19

**“We spend a lot of money to treat MRSA, but we do nothing to stop hospital-acquired covid-19”**

with those who didn't have it, this death rate is much higher than usual after hip repair, which is about 6 per cent in the UK.

“No one's health is going to be improved by getting covid,” says Butler. “We are seeing many people getting clots, or they get delirious, start wandering and can fall.”

These studies were done before the current omicron variant became dominant and before so many people had been vaccinated and boosted, so it is possible that

the current effect of covid-19 on death rates is less, says Chetan Khatri at the University of Warwick, UK. “But it does worsen the death rate for all kinds of surgery.”

What can be done? There are no large, randomised trials where hospitals try different ways to reduce the spread of the coronavirus, although there are hints from other kinds of studies.

For instance, in December 2020, Addenbrooke's Hospital in Cambridge, UK, started giving higher-quality respirators to all staff working on covid-19 wards, when previously only basic face masks had been offered. Before the change, staff on covid-19 wards had a nearly 50-fold higher risk of becoming infected than those on non-covid-19 wards. With the respirators, the risk to staff was about the same regardless of ward.

Another possibility is to have machines called HEPA filters placed by beds. These remove small particles from the air, including tiny exhaled water droplets containing viruses.

A study carried out at Addenbrooke's showed that using these machines removes coronaviruses from the air – although research to see if they reduce infection rates is still ongoing. The disadvantage of the machines is that they can be noisy and cause drafts if not directed away from patients, says Butler.

Covid-19 prevention practices may not change until more results from research are available showing that steps such as HEPA filters, respirators and increased testing improve patients' outcomes. But there is still more that can be done. At the moment, many hospitals aren't testing people who are asymptomatic, says Klompas. “If you don't measure it, you won't know.” ■